

**REMARKS**

The applicants' counsel would like to thank the Examiner for discussing the amended claims and the references discussed by the Examiner in the 10/3/03 office action during a telephonic interview dated 12/2/03, during which agreement with respect to the claims was not reached.

Reconsideration and allowance of the above-identified claims are now respectfully requested. Claims 1-24 are now pending. Claims 1, 10, 17, and 18 have been amended, and claims 22-24 have been added. Claim 2 has been cancelled without prejudice.

The *Office Action* rejected claims 1-4, 7-10, and 14-17 as being anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 6,277,055 to Birrell et al ("Birrell"). The *Office Action* also rejected these claims, as well as claims 5, 6, 11-13, 18, 19, and 21, as being unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,146,313 to Whan-Tong et al ("Whan-Tong") in view of U.S. Patent No. 5,336,141 to Vittone ("Vittone") and *Birrell*. Finally, the *Office Action* rejected claim 17 under 35 U.S.C. § 112. The *Office Action* discussed, but did not explicitly reject claim 20.

Claims 1 and 10 have been amended to positively recite that each of the first and second foot supports comprises a leaf spring. The *Birrell* reference, however, fails to disclose or suggest that its foot support(s) comprises a leaf spring. Accordingly, Applicants respectfully submit that the § 102(b) rejections of record for independent claims 1 and 10 and their related dependent claims are now moot.

In addition, Applicants respectfully submit that there would have been no motivation to accomplish Applicants' invention by combining the cited references. The applicant's achieve a unique kind of flexibility within an elliptical device, namely through

the use of leaf springs. Furthermore, the applicants' unique use of leaf springs also has the unexpected and surprising result of compensating for differences in a user's gait without added device modification. This unique use and surprising success is not taught or suggesting in the cited references, which actually teach away from the present invention.

There was no Motivation to Combine.

In general, the exercise equipment art teaches that elliptical exercise devices are designed to provide an opportunity for exercise motion that is an alternative to the running motion enabled by a treadmill. For example, the Whan-Tong reference teaches that "[o]ne drawback of most treadmills is that during jogging or running, significant jarring of the hip, knee, ankle, and other joints of the body may appear," column 1, line 28, and that, with regard to elliptical exercisers "jogging and running are simulated without imparting shock to the user's body joints in the manner of exercise treadmills." Column 1, line 52.

However, as opposed to typical elliptical exercises, the leaf spring elliptical device of the present invention is not merely an alternative to the running motion enabled by a treadmill. Instead, the leaf spring elliptical device of the present invention offers both an alternative to a treadmill motion and an alternative to typical elliptical motions.

Specifically, whereas typical elliptical devices provide a motion that is elliptical, rather than the running motion of a treadmill, the leaf spring elliptical device of the present invention provides: (i) an elliptical motion; and (ii) a cushioned, bouncy motion throughout the length of the foot support. The leaf spring elliptical provides this alternative motion in a stable manner. The leaf spring elliptical also compensates for differences in a user's gait without added device modification.

Thus, the leaf spring elliptical of the present invention solves these five challenges, among others: (i) offering an alternative, elliptical motion to the motion of a treadmill; (ii) providing a cushioned motion on an elliptical foot support; (iii) providing such a cushioned motion throughout the length of the elliptical foot support; (iv) providing such an alternative, cushioned motion on an elliptical foot support in a stable manner; and (v) compensating for differences in a user's gait without added device modification.

The cited references fail to disclose or suggest solutions to each of these challenges, whether individually or collectively. For example, *Whan-Tong* fails to disclose the cushioned, bouncy motion achieved through the applicants' leaf springs. Similarly, the *Birrell* system fails to disclose a stable cushioned motion extending along the length of an elliptical foot support and teaches that it is desirable to provide "uncoordinated motion" between the foot supports and hand grips. Abstract; Column 9, lines 18, 62 Finally, *Vittone* fails to teach an elliptical motion.

Finally, none of the cited references teaches the use of leaf springs on an elliptical device in order to compensate for differences in a user's gait without added device modification. Thus, none of the cited references individually or collectively disclose or suggest the various advantages of the present invention recited above and there is no suggestion to combine the cited references.

*Birrell Teaches Uncoordinated Motion Between Hands and Feet.*

First, *Birrell* teaches throughout its text that it is desirable to provide "uncoordinated motion" between the foot supports and hand grips. *Birrell* specifically teaches that natural exercise motions, exercise of a large number of muscles, and "[i]ncreased muscle flexibility and coordination," can be achieved through "flexibly

*coordinated motion between a user's hands and feet*" provided by the device. Column 3, line 41-50 (emphasis added).

One skilled in the art would not be motivated to combine *Birrell's* teaching of providing flexibly coordinated motion between a user's hands and feet with *Vittone's* teaching of using a leaf spring. *Birrell's* teachings regarding flexibility focus on the junction between the foot supports and the hand supports, not on the length of the foot support itself, the cushioning of which is achieved by applicants' use of a leaf spring. The leaf spring provides flexibility to the movement of the feet along the length of the foot support, not merely the junction between the foot and hand supports. Thus, one skilled in the art would not be motivated to combine the teachings of *Birrell* with those of *Vittone*, and the references teach away from the applicants' invention.

Applicant's Leaf Springs Have Surprising and Unexpected Results.

As a further distinction that teaches away from combining the cited references, Applicants' leaf springs have advantages that that are not suggested in each of the foregoing references. For example, Applicants discovered that the flexibility provided leaf spring can be used, among other things, to deviate the elliptical path to account for differences in each user's gait without added device modification. *See, e.g.,* Applicants' Application, pg. 3, ¶ 11; pg. 5, ¶ 17; pg. 7, ¶ 24; pg. 8, ¶ 28; pg. 12 ¶ 37; pg. 13 ¶ 40.

For example, the specification states that "[t]he elliptical exercise apparatus generally accommodates variations in gaits of different users by providing leaf springs that flex in varying degrees in response to the various magnitudes of force that are applied by different users." Specification, page 3, paragraph 11.

By contrast, the foregoing references only teach such gait accommodations with fairly complicated mechanisms attached to the front of a foot support, and/or foot mounting mechanisms on top of the foot support that must be adjusted for each user. See e.g., *Whan-Tong*, col. 6, ll. 19-22; col. 10, ll. 31-35.

Thus, the leaf springs produce surprising and unexpected results regarding the ability to accommodate for differences in a user's gait and forces applied during use of the device, and are therefore not obvious in light of the cited references.

The Cited References Do Not Suggest Applicants' Exercise Motion.

Furthermore, the cited references do not suggest the exercise motion achieved by an elliptical device having leaf spring supports. Each of the cited references teaches an alternative to linear motion, but none of the alternatives suggest, in combination, the elliptical motion achieved by the applicants.

For example, *Vittone* teaches that its forward and backward moving "oscillators," move along paths that are generally parallel to each oscillator's length. See Col. 6, lines 60-63; Figure 1; Figure 4. This motion can be characterized as a generally linear motion. *Vittone* teaches the use of flexible oscillators that flex in a direction perpendicular to the generally linear motion. See Abstract; Column 2, lines 53-60; Column 3, line 58; Column 1, lines 67-68, Column 6, lines 50-Column 7, line-17. Thus, *Vittone* teaches that non-linear motion can be achieved through the use of leaf springs.

By contrast, *Whan-Tong* teaches the use of a mechanism that achieves an elliptical motion. *Whan-Tong* effectively teaches an exercise device that simulates non-linear motion through the use of structural mechanisms attached to the front and back end of foot supports, rather than with vertical flexibility on the foot support itself as in *Vittone*. These

mechanisms include a flywheel attachment at the back end of a foot support and a hinged attachment at the front of the foot support. Col. 2, ll. 32-36; col. 4, ll. 9-11.

Since the leaf spring of *Vittone* is used for providing non-linear motion, and since *Whan-Tong* effectively teaches a non-linear motion through the use of a flywheel and hinge mechanism, there is no teaching or suggestion that *Whan-Tong's* device would realize any advantage by implementing Vittone's teachings of a leaf spring, particularly since the *Whan-Tong* mechanisms are geared specifically toward creating specific elliptical motions.

In short, since *Whan-Tong* has already achieved a non-linear motion by using its elliptical motion, there is no teaching of a need for an additional non-linear motion as taught in Vittone. *Birrell* emphasizes "flexibly coordinated motion between a user's hands and feet," Column 3, line 41-50, as discussed above, rather than teaching the desirability of achieving non-linear motion through the entire length of a foot support, as achieved by applicants' device. *Birrell* teaches an exercise device that simulates natural leg motions through the use of specific elliptical mechanisms attached to the front and back end of foot supports, rather than with vertical flexibility on the foot support itself. *Birrell*, col. 4, ll. 23-28; col. 4, ll. 43-46; col. 5, ll. 65-67 – col. 6, ll. 1-3.

Furthermore, applicants note in the instant Application that use of a flexible member can actually cause the foot support to deviate from an elliptical path as the leaf springs flex during use. *See, e.g.*, Applicants' Application, pg. 12 ¶ 37. The specification teaches that: "[i]t should also be appreciated that the foot engagement pads 36a-b may deviate from the substantially elliptical path 70 as the leaf springs 34a-b flex and bend to accommodate the various forces that are applied, during use, such as when the elliptical exercise apparatus 10 is used by different users with different gaits." Page. 12 ¶ 37.

Inasmuch as defined elliptical motion is important in the *Whan-Tong* disclosure, Applicants respectfully submit that one of ordinary skill would not anticipate an advantage to adding the flexible movement of *Vittone* or *Birrell* with the defined motions of *Whan-Tong*.

Summary

A rejection based on a combination of the three references of *Birrell*, *Vittone* and *Whan-Tong* should not be based on hindsight in view of the applicants' invention, rather than in foresight when the three references are considered without viewing the applicants' invention. There is no motivation taught to combine a leaf spring such as found in *Vittone* with an elliptical device of *Whan-Tong* in light of the "flexibly coordinated motion between a user's hands and feet", taught in *Birrell*.

The applicant's achieve a unique kind of flexibility within an elliptical device wherein the foot supports are flexible throughout their lengths, namely through the use of leaf springs. Such unique use also has the unexpected and surprising result of compensating for differences in a user's gait without added device modification. This unique use and surprising success is not taught or suggesting in the cited references, which actually teach away from the present invention. As such, no motivation existed at the time of Applicants' invention to combine each of the cited references. Therefore the present invention is patentable over the cited references.

Applicants have cancelled claim 2 without prejudice. Applicants have also amended claim 17 to correct claim number dependency. Applicants respectfully submit that the §112 rejections of record with regard to antecedent basis are now moot.

In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney at 801-321-8826.

Dated this 3rd day of March, 2004

Respectfully submitted,



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